

ARMY PROGRAMS

Kiowa Warrior (OH-58D)

The OH-58D Kiowa Warrior is a two-seat, single engine armed reconnaissance helicopter. It features a mast-mounted infrared sensor, television sensor, and laser range-finder/designator. Universal weapons pylons are mounted on both sides of the aircraft, capable of accepting combinations of the semi-active laser Hellfire missile, the Air-to-Air Stinger missile, 2.75 inch Folding Fin Aerial Rocket pods, and a 0.50 caliber machine gun. In addition to targeting and weapons systems, recent Kiowa Warrior upgrades include improvements in air-to-air and air-to-ground communications, mission planning and management, available power, survivability, night flying, and reductions in crew workload through the use of on-board automation and cockpit integration. The primary mission of the Kiowa Warrior is armed reconnaissance in air cavalry troops and light attack companies. In addition, the Kiowa Warrior may be called upon to participate in Joint Air Attack operations, air combat, limited attack operations, or artillery target designation. The prime contractor is Bell Helicopter Textron, Inc.

The Kiowa Warrior is an Acquisition Category II program with an Army acquisition objective of 411 Kiowa Warriors. Due to attrition, the current fleet inventory is 373 aircraft.

Over time, concerns surfaced regarding the impact of weight growth on the aircraft's power margin, endurance and auto-rotation performance, and the impact of several important Interim Statements of Aircraft Qualification restrictions on the operational utility of the Kiowa Warrior. To address these and other concerns, the Army is executing a Safety Enhancement Program (SEP) for the OH-58D Kiowa Warrior that incorporates an improved engine with full authority digital electronic control, crashworthy crew seats, air bags, improved master controller processor, and data modem. The intention of the SEP is to improve engine reliability and crew crash protection, reduce pilot workload during emergency maneuvers, and provide additional digitization capabilities. Current funding for the SEP will modify 301 of the required 354 aircraft. There is an unfunded Army requirement of approximately \$90 million for the additional aircraft. The SEP began in FY98. As of December 2003, the upgrade is complete on 192 aircraft.

TEST & EVALUATION ACTIVITY

The Army conducted flight-testing and assessments of upgraded Control & Display System (CDS) software during FY03. Elements of the assessment include software verification; generation of data necessary to support the evaluation of the operational effectiveness and suitability of the Improved Data Modem (model 304); assessment of the Common Transponder (CXP) performance; and conduct of a preliminary airworthiness evaluation addressing the aircraft's handling qualities.

The participation of the Kiowa Warrior in Operation Iraqi Freedom continues to provide information concerning effectiveness and suitability for the system and the units who fly and employ the system.

The DOT&E approved LFT&E strategy identifies the resources (hardware, tests, and schedule) necessary for an adequate vulnerability assessment program and outlines a two-phase ballistic program. The ballistic program will investigate the vulnerability of the main rotor blade and the main rotor mast mounted sensor system. The intention of the two-phase strategy is to assess ballistic damage tolerance under static (loaded and unloaded components) and dynamic (fully rotating rotor system) conditions. The Kiowa



The Kiowa Warrior performing a reconnaissance mission in support of Stabilization Forces in Bosnia.

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Warrior live fire testing for the static (Phase I) effort is complete. The Army Research Laboratory intends to conduct the Dynamic (Phase II) testing during 1QFY04.

The Army is proposing to concede some dynamic testing of the mast-mounted sensor - given that it failed the static testing - and desires to replace that segment of the test with a new additional test of the crew seat armor.

TEST & EVALUATION ASSESSMENT

The Kiowa Warrior is making steady progress in integration testing of its latest control and display system (CDS-4) with the improved data modem, the tactical internet, and fire control systems. Testing results reflect no significant issues. In Operation Iraqi Freedom, SEP-modified aircraft and the addition of engine barrier filters (EBFs) greatly increased the operational effectiveness, suitability, and survivability of Kiowa Warrior units. Prior to the fielding of EBFs, Kiowa Warrior units were experiencing engine failures in sand and dust environments in as little as seven hours of operation. About the best that units could expect the aircraft to operate, without engine failure related problems, was 300 hours. The engine is designed to last between 1,500 and 1,750 hours between overhauls depending on the model. EBF fielded units are experiencing no incidents of engine or compressor erosion and are getting full 1,500- 1,750 hours out of their engines. As a result, units are able to focus more on their mission.

The Army is conducting an adequate live fire test program. The Phase I static test effort is complete as of the end of FY03 with no significant issues identified. During the dynamic Phase II of the live fire test program, the Army plans to utilize a crashed OH-58 to serve as the operational ground test vehicle; restoration and repair of the vehicle is complete. Plans call for the Army to complete this second phase in early FY04.